# Computerized Medical Imaging and Graphics

VOLUME 16, 1992 LIST OF CONTENTS AND AUTHOR INDEX

# **Computerized Medical Imaging and Graphics**

(Formerly Computerized Radiology)

The International Journal of Radiological Diagnosis Using:

CT • NMR • PET • Digital Fluoroscopy • Computer Imaging

#### Editor-in-Chief: ROBERT S. LEDLEY

Departments of Physiology & Biophysics and Radiology, Georgetown University Medical Center, Washington, DC 20007, U.S.A.

Co-Editor-in-Chief: WILLIAM R. AYERS

Georgetown University Medical School, Washington, DC 20007, U.S.A.

Managing Editor: BLAIRE V. MOSSMAN P.O. Box 13177, Scottsdale, AZ 85267-3177, U.S.A.

#### **Editorial Board**

Margaret Abernathy Georgetown University Medical Ctr. Washington, DC

Raj S. Acharya State Univ. of New York Buffalo, NY

Gordon Banks University of Pittsburgh Pittsburgh, PA

P.E. Billimoria Loma Linda Univ. Medical Ctr. Loma Linda, CA

P. Boesiger
Institut fur Biomedizinische Technik
Zurich, Switzerland

Fred L. Bookstein
The Univ. of Michigan
Ctr. for Human Growth & Dev.
Ann Arbor, MI

Gerhard Brauer
University of Victoria
Victoria, B.C., Canada

Michael Buas Georgetown University Medical Ctr. Washington, DC

Art Burgess Vancouver General Hospital Vancouver, B.C., Canada

E.A. Cabanis Centre National d'Ophthalmologie Paris, France

Ralph Chapman Museum of Natural History Washington, DC

Z.H. Cho University of California Irvine, CA

Arnold Cowen
The General Infirmary
Leeds, England

Charles A. Csuri Ohio State University Columbus, OH

Richard Cumberlin Georgetown University Hospital Washington, DC

Alden W. Dudley, Jr.
Veterans Administration
Medical Ctr., Houston, TX

Noboru Funakubo
Tokyo Metropolitan Inst. of
Technology
Tokyo, Japan

Arthur P. Ginsburg Vision Sciences Research Corp. San Ramon, CA

Edmund Glaser
Univ. of Maryland Sch. of Med.
Baltimore, MD

Colin Goodall
Pennsylvania State University
University Park, PA

David Goodenough
George Washington University

Washington, DC Randall A. Hawkins

UCLA Los Angeles, CA Robert J. Herfkens

Stanford University Sch. of Med. Stanford, CA

Gabor T. Herman University of Pennsylvania Philadelphia, PA

H.K. Huang UCLA Los Angeles, CA

Ira Kalet University of Washington

Seattle, WA
Bruce Kall
Mayo Foundation
Rochester, MN

Jorge Kattah
Georgetown University Hospital
Washington, DC

Claus O. Koehler
Dept. for Medical and Biological

Informatics Heidelberg, Germany N.A. Lassen

Bispebjerg Hospital Copenhagen, Denmark K. Francis Lee University of Miami

Miami, FL George C. Levy Syracuse University Syracuse, NY

William A. Lindgren, Sr. Linscan Systems, Inc. Rolla, MO Eberhard Lohr Klinikum Essen Essen, Germany Herbert Lubs University of Miami

Miami, FL Barry R. Masters Uniformed Services

University of the Health Sciences Bethesda, MD

Donald McEachron Drexel University Philadelphia, PA D. Meyer-Ebrecht

Aachen University of Technology Aachen, Germany

K. Jack Momose Massachusetts General Hospital Boston, MA

Randy H. Moss University of Missouri Rolla, MO

Bjorn Nordenstrom Karolinska Hospital Stockholm, Sweden Louis S. Parvey Diagnostic Imaging Memphis, TN G.F. Pistolesi

Universita Di Verona Verona, Italy Benham Pourdeyhimi University of Maryland College Park, MD

D.P. Pretschner Univ. Hildesheim Hildesheim, Germany

Ian L. Pykett
Intermagnetics General Corporation
Guilderland, NY

William D. Richard
Washington University
St. Louis, MO
Richard A. Robb
Mayo Clinic
Rochester, MN
Denis Rutovitz

Western General Hospital Edinburgh, Scotland Francis J. Scholz Lahey Clinic Med. Ctr. Burlington, MA Steven E. Seltzer

Harvard University Medical School Boston, MA Max Shaff

Vanderbilt University Nashville, TN

Lawrence Stark University of California Berkeley, CA

Alasdair C. Steven
National Institutes of Health
Bethesda, MD

William V. Stoecker University of Missouri Rolla, MO

Jung Ho Suh Yonsei University Medical Center Seoul, Korea

Mutsumasa Takahashi Kumamoto University School of Medicine Kumamoto, Japan

C.M. Taylor University of Manchester Manchester, England

Oleh Tretiak Drexel University Philadelphia, PA

Homer L. Twigg, Jr. Georgetown University Hospital

Washington, DC

Jayaram Udupa

Linivarity of Pennsylvania

University of Pennsylvania Philadelphia, PA

Michael W. Vannier Mallinckrodt Inst. of Radiology St. Louis, MO

A. Wackenheim Université de Strasbourgh Strasbourgh, France

Steven Warsof
Tidewater Prenatal Center
Virginia Beach, VA

Leon A. Weisberg Tulane University School of Medicine New Orleans, LA

Robert E. Wise Lahey Clinic Foundation Burlington, MA

Darrell E. Wolfley Yale Eye Center New Haven, CT

Editorial Office: Computerized Medical Imaging and Graphics, National Biomedical Research Foundation, Georgetown University Medical Center, 3900 Reservoir Road, NW, Washington, DC 20007, U.S.A.

Production Office: Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.

Publishing, Subscription, and Advertising Offices: Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A., INTERNET "PPI@PERGAMON.COM"; and Pergamon Press Ltd., Headington Hill Hall, Oxford OX3 0BW, England.

Published Bimonthly. Annual Institutional Subscription Rate (1993): £342.00 (\$650.00). Personal Subscription Rate (1993): £60.00 (114.00). Sterling prices are definitive. US dollar prices are quoted for convenience only, and are subject to exchange rate fluctuation. Prices include postage and insurance and are subject to change without notice.

1992

## CONTENTS

Harold L. Mast, Jack O. Haller and 1 Benign Lesions of the Mandibular and Maxillary Region in Children: Characterization by CT and Marshall Solomon **MRI** Vung D. Nguyen and Marla Hersh 11 A Rare Bone Tumor in an Unusual Location: Osteoblastoma of the Vertebral Body William E. Higgins, Namsik Chung 17 LV Chamber Extraction from 3-D CT Images and Erik L. Ritman Accuracy and Precision Brent T. Fonner and Robert L. Right Atrial Rupture Due to Blunt Trauma: CT Vogelzang **Evaluation** 31 Intracranial Plasma Cell Granuloma Evaluated by Katsuyoshi Mineura, Toshio Sasajima, Masayoshi Kowada, Masahiro Saitoh Positron Emission Tomography and Fumio Shishido Oliver Krief, John M. Gomori and 39 CT of Pneumoparotitis Isaac Gay Robert S. Shapiro, David S. Mendelson 43 Carcinoid Tumor of the Lung Presenting as a and Colleen A. Edwards Pleural Mass: CT Diagnosis Darío Casas, Ricard Pérez-Andrés, 47 CT Demonstration of Pelvic Wall Spread in Joan C. Quer and Eduard Cabré Primary Colonic Linitis Plastica Jon T. Harman and Kenyon K. 51 Preaortic Iliac Venous Confluence: 2-D and 3-D Kopecky CT Findings David J. Panasci, David H. Gordon 55 Sarcoidosis of the Liver: Evaluation with Multiple and Richard Sadovsky **Imaging Modalities** Brenda J. Espe and Harris A Tonsillolith Seen on CT 59 Newmark, III Brad S. Gluck and David S. 63 Technical Note: Shoulder Subluxation as a Mendelson Complication of Positioning during CT I New Patents Software Survey Section

#### **Volume 16 Number**

1992

#### **CONTENTS**

Hans-Heino Ehricke and Lothar Rudi Schad 65 MRA-Guided Stereotactic Radiation Treatment Planning for Cerebral Angiomas

Stephan E. Maier, Stefan E. Fischer,
Graeme C. McKinnon, Otto M. Hess,
Hans-Peter Krayenbuehl, and Peter
Boesiger
Frédérique Frouin, Jean-Pierre Bazin
Mireille Di Paola, Odile Jolivet, and

- 73 Acquisition and Evaluation of Tagged Magnetic Resonance Images of the Human Left Ventricle
- Robert Di Paola
- FAMIS: A Software Package for Functional Feature Extraction from Biomedical Multidimensional Images
- Giovanni Braccini and Ovidio Salvetti
- Morphometric Analysis of Sonographic Images by 93 Spatial Geometric Modeling
- Alfredo Bartolini, Bruno Gasparetto, Giovanni Ajmar, Raffaele Amore, and Mauro Furlan
- Hemodynamic Assessment of Vascular 109 Malformations by Angio CT with Generation of **Functional Transit Time Images**
- Philip Goodman, Rodrigo Dominguez, and Mauricio Castillo
- 117 Diffuse Neonatal Hemangiomatosis: Imaging Findings in Two Patients
- Scott E. Sheward, Robert R. Spencer, Thomas R. Hinton, Cheryl W. Hightower, Piyush V. Patel, and Joseph G. Suckarieh
- 121 Computed Tomography of Primary Aortocaval Fistula
- Junichi Yoshida, Tadatoshi, Takayama, Junji Yamamoto, Kazuaki Shimada, Tomoo Kosuge, Susumu Yamasaki, Hiroshi Hasegawa, Noriyuki Moriyama, Kenichi Takayasu, Yukio Muramatsu, Michiie Sakamoto, Setsuo Hirohashi, and Masatoshi Makuuchi
- Computed Tomography of Sclerosing Hepatocellular Carcinoma
- Shoji Asari, Shinji Katayama, Takahiko Itoh, Shohei Tsuchida, and Akira Nishimoto
- 131 MR Findings of Posterior Fossa Hemangioblastomas
- Matthew J. Kuhn, Stewart M. Couch, David H. Binstadt, Daniel A. Rightmire, Augusto Morales, Narinder N. Khanna, and Scott D. Long
- 137 Prenatal Recognition of Central Nervous System Complications of Alloimmune Thrombocytopenia
  - **New Patents**
  - Software Survey Section

1992

#### **CONTENTS**

William V. Stoecker and Randy H. Moss

Introduction 143

William V. Stoecker and Randy H.

145 Editorial: Digital Imaging in Dermatology

Moss

Charles A. Sneiderman, John P. Cookson, and Antoinette F. Hood	151	Use of Computer Graphic Images in Teaching Dermatology
Prashanth Kini and Atam P. Dhawan	153	Three-Dimensional Imaging and Reconstruction of Skin Lesions
Atam P. Dhawan and Anne Sicsu	163	Segmentation of Images of Skin Lesions Using Color and Texture Information of Surface Pigmentation
William V. Stoecker, Chang-Sung Chiang, and Randy H. Moss	179	Texture in Skin Images: Comparison of Three Methods to Determine Smoothness
William V. Stoecker, William Weiling Li, and Randy H. Moss	191	Automatic Detection of Asymmetry in Skin Tumors
Jeremiah E. Golston, William V. Stoecker, Randy H. Moss, and Inder P. S. Dhillon	199	Automatic Detection of Irregular Borders in Melanoma and Other Skin Tumors
Douglas A. Perednia and Raymond G. White	205	Automatic Registration of Multiple Skin Lesions by Use of Point Pattern Matching
Raymond G. White and Douglas A. Perednia	217	Automatic Derivation of Initial Match Points for Paired Digital Images of Skin
Scott E. Umbaugh, Randy H. Moss, and William V. Stoecker	227	An Automatic Color Segmentation Algorithm with Application to Identification of Skin Tumor Borders
	I	New Patents
- C	V	Software Survey Section

1992

# **CONTENTS**

S. Dunne, S. Napel, and B. Rutt	237	Interactive Display of Volumetric Data by Fast Fourier Projection
Ewa Pietka and H. K. Huang	253	Correction of Aberration in Image-Intensifier Systems
Shih-Chung B. Lo, Shyh-Liang A. Lou, and Seong K. Mun	259	Projection Domain Compensation of Missing Angles for Fan-Beam CT Reconstruction
Luis A. Fernandez, Hideo Yamamori, Naoya Inoue, Rolando Ticona, and Katsuji Okui	271	Fluorescence Photograph of Stomach Cancer Tumors in Wistar Rats: Computerized Analysis
Giuseppe Potente, Alberto Bellelli, and Pierfrancesco Nardis	277	Specific Diagnosis by CT and HRCT in Six Chronic Lung Diseases

Michael L. Brooks, David P. Mayer, Robert T. Sataloff, Donald L. Myers, Joseph R. Spiegel, and Saturnino Ruiz	283	Intracanalicular Arachnoid Cyst Mimicking Acoustic Neuroma: CT and MRI
Chui-Mei Tiu, Yi-Hong Chou, Huay-Tsang Wang, and Tsuen Chang	287	Epitheloid Hemangioendothelioma of Spleen with Intrasplenic Metastasis: Ultrasound and Computed-Tomography Appearance
Scott D. Long and Matthew J. Kuhn	291	Primitive Neuroectodermal Tumor: CT, MRI, and Angiographic Findings
Rhett D. Krause, Joseph B. Dowd, Carl R. Larsen, John T. Cuttino, Jr., and Francis J. Scholz	297	Acute Pyelonephritis After Transrectal Ultrasonographically Guided Biopsy of the Prostate: Diagnosis by Computed Tomography
	I	New Patents
	VII	Software Survey Section

1992

	CO	NTENTS
	CO	TTEITIS
Rita Lohrum, Gerd Becker, Robert Boesecke, Timm Werner, Wolfgang Schlegel, and W. J. Lorenz	301	A Medical Workstation for the Evaluation of Alternative 3D Radiotherapy Treatment Plans
R. J. Seitz and P. E. Roland	311	Variability of the Regional Cerebral Blood Flow Pattern Studied with [11C]-Fluoromethane and Position Emission Tomography (PET)
Maria Kallergi, Kevin Woods, Laurence P. Clarke, Wei Qian, and Robert A. Clark	323	Image Segmentation in Digital Mammography: Comparison of Local Thresholding and Region Growing Algorithms
T. R. Jackson and M. B. Merickel	333	Applications of Hierarchical Image Segmentation Techniques: Aorta Segmentation
David P. Mayer, Richard G. Schmidt, and Saturnino Ruiz	345	MRI Diagnosis of Biceps Tendon Rupture
Philip E. Cranston, Margaret T. Hatten, and Edward E. Smith	349	Metastatic Pineoblastoma Via a Ventriculoperitoneal Shunt: CT Demonstration
Leon A. Weisberg, Debra Elliott, and Morteza Shamsnia	353	Massive Putaminal-Thalamic Nontraumatic Hemorrhage
Richard R. Barbu, Arfa Khan, Jason L. Port, Allan Abramson, and Willa S. Gartenhaus	359	Case Report: Extramedullary Plasmacytoma of the Larynx
	I	New Patents
	VII	Coffman Cuman Continu

VII Software Survey Section

#### 1992

## **CONTENTS**

- Roddy W. McColl, James L. 363 Three-Dimensional Reconstruction of Skeletal Fleckenstein, John Bowers, Gabrielle Muscle from MRI Theriault, and Ronald M. Peshock Steven E. Seltzer, Barbara J. McNeil, Combining Evidence from Multiple Imaging 373 Carl J. D'Orsi, David J. Getty, Ronald Modalities: A Feature-Analysis Method M. Pickett, and John A. Swets Tarvinder B. S. Buxi, Rakesh B. 381 CT Appearances in Macronodular Hepatosplenic Tuberculosis: A Review with Five Additional New Vohra, Y. Sujatha, Deepak Chawla, Shristi P. Byotra, Prem S. Gupta, Cases Vijay K. Dewan, and Chandra K. Kanwar Shoji Asari, Tetsuo Makabe, Shinji 389 Configurational MR Characteristics of Metastatic Katayama, Takahiko Itoh, Shouhei **Brain Tumors** Tsuchida, and Takashi Ohmoto Philip E. Cranston, Mai Saif, and Thrombosis of the IVC and Azygous Continuation Jennifer Elise Hamrick-Turner of IVC by Bronchogenic Cancer: CT and MRI Appearance Katsuyoshi Mizukami, Hiroyasu 401 CNS Changes in Neuro-Behçet's Disease: CT, MR, Shiraishi, Yoshiro Tanaka, Yasushi and SPECT Findings Terashima, Nobutoshi Kawai, Atsuomi Baba, Tetsuaki Arai, and Junzo Koizumi
  - 407 Contents/Author Index to Volume 16
    - I New Patents
    - III Software Survey Section

# **AUTHOR INDEX**

Abramson, A., 359 Ajmar, G., 109 Amore, R., 109 Arai, T., 401 Asari, S., 131, 389

Baba, A., 401
Barbu, R. R., 359
Bartolini, A., 109
Bazin, J.-P., 81
Becker, G., 301
Bellelli, A., 277
Binstadt, D. H., 137
Boesecke, R., 301
Boesiger, P., 73
Bowers, J., 363
Braccini, G., 93
Brooks, M. L., 283
Buxi, T. B. S., 381
Byotra, S. P., 381

Cabré, E., 47
Casas, D., 47
Castillo, M., 117
Chang, T., 287
Chawla, D., 381
Chiang, C.-S., 179
Chou, Y.-H., 287
Chung, N., 17
Clark, R. A., 323
Clarke, L. P., 323
Cookson, J. P., 151
Couch, S. M., 137
Cranston, P. E., 349, 397
Cuttino, Jr., J. T., 297

D'Orsi, C. J., 373 Dewan, V. K., 381 Dhawan, A. P., 153, 163 Dhillon, I. P. S., 199 Di Paola, M., 81 Di Paola, R., 81 Dominguez, R., 117 Dowd, J. B., 297 Dunne, S., 237

Edwards, C. A., 43 Ehricke, H.-H., 65 Elliott, D., 353 Espe, B. J., 59

Fernandez, L. A., 271
Fischer, S. E., 73
Fleckenstein, J. L., 363
Fonner, B. T., 27
Frouin, F., 81
Furlan, M., 109
Gartenhaus, W. S., 359
Gasparetto, B., 109
Gay, I., 39
Getty, D. J., 373
Gluck, B. S., 63
Golston, J. E., 199
Gomori, J. M., 39
Goodman, P., 117
Gordon, D. H., 55
Gupta, P. S., 381

Haller, J. O., 1 Hamrick-Turner, J. E., 397 Harman, J. T., 51 Hasegawa, H., 125 Hatten, M. T., 349 Hersh, M., 11 Hess, O. M., 73 Higgins, W. E., 17 Hightower, C. W., 121 Hinton, T. R., 121 Hirohashi, S., 125 Hood, A. F., 151 Huang, H. K., 253

Inoue, N., 271 Itoh, T., 131, 389

Jackson, T. R., 333 Jolivet, O., 81

Kallergi, M., 323 Kanwar, C. K., 381 Katayama, S., 131, 389 Kawai, N., 401 Khan, A., 359 Khanna, N. N., 137 Kini, P., 153 Koizumi, J., 401 Kopecky, K. K., 51 Kosuge, T., 125 Kowada, M., 31 Krause, R. D., 297 Krayenbuehl, H.-P., 73 Krief, O., 39 Kuhn, M. J., 137, 291

Larsen, C. R., 297 Li, W. W., 191 Lo, S.-C. B., 259 Lohrum, R., 301 Long, S. D., 137, 291 Lorenz, W. J., 301 Lou, S.-L. A., 259

Maier, S. E., 73 Makabe, T., 389 Makuuchi, M., 125 Mast, H. L., 1 Mayer, D. P., 283, 345 McColl, R. W., 363 McKinnon, G. C., 73 McNeil, B. J., 373 Mendelson, D. S., 43, 63 Merickel, M. B., 333 Mineura, K., 31 Mizukami, K., 401 Morales, A., 137 Moriyama, N., 125 Moss, R. H., 143, 145, 179, 191, 199, 227 Mun, S. K., 259 Muramatsu, Y., 125 Myers, D. L., 283

Napel, S., 237 Nardis, P., 277 Newmark, III, H., 59 Nguyen, V. D., 11 Nishimoto, A., 131

Ohmoto, T., 389 Okui, K., 271

Panasci, D. J., 55 Patel, P. V., 121 Perednia, D. A., 205, 217 Pèrez-Andrés, R., 47 Peshock, R. M., 363 Pickett, R. M., 373 Pietka, E., 253 Port, J. L., 359 Potente, G., 277

Qian, W., 323 Quer, J. C., 47

Rightmire, D. A., 137 Ritman, E. L., 17 Roland, P. E., 311 Ruiz, S., 283, 345 Rutt, B., 237

Sadovsky, R., 55 Saif, M., 397 Saitoh, M., 31 Sakamoto, M., 125 Salvetti, O., 93 Sasajima, T., 31 Sataloff, R. T., 283 Schad, L. R., 65 Schlegel, W., 301 Schmidt, R. G., 345 Scholz, F. J., 297 Seitz, R. J., 311 Seltzer, S. E., 373 Shamsnia, M., 353 Shapiro, R. S., 43 Sheward, S. E., 121 Shimada, K., 125 Shiraishi, H., 401 Shishido, F., 31 Sicsu, A., 163 Smith, E. E., 349 Sneiderman, C. A., 151 Solomon, M., 1 Spencer, R. R., 121 Spiegel, J. R., 283 Stoecker, W. V., 143, 145, 179, 191, 199, 227 Suckarieh, J. G., 121 Sujatha, Y., 381 Swets, J. A., 373

Takayama, T., 125 Takayasu, K., 125 Tanaka, Y., 401 Terashima, Y., 401 Theriault, G., 363 Ticona, R., 271 Tiu, C.-M., 287 Tsuchida, S., 131, 389

Umbaugh, S. E., 227

Vogelzang, R. L., 27 Vohra, R. B., 381

Wang, H.-T., 287 Weisberg, L. A., 353 Werner, T., 301 White, R. G., 205, 217 Woods, K., 323

Yamamori, H., 271 Yamamoto, J., 125 Yamasaki, S., 125 Yoshida, J., 125

